

CLAIMS

What is claimed is:

1. A paper discharge unit used with an inkjet printer which ejects a sheet of paper on which image printing is completed by a nozzle part out of a printer main body, comprising:

a paper discharge roller mounted in a printer main body to feed the sheet out of the printer main body; and

a paper discharge guide disposed downstream of the paper discharge roller in a direction the sheet is fed, and to guide a front end of the sheet upward just after the front end is ejected from the paper discharge roller so a rear end portion of the sheet is prevented from being lifted to restrain the rear end portion of the sheet from coming in contact with the nozzle part of the ink cartridge.

2. The paper discharge unit as claimed in claim 1, wherein the paper discharge guide guides a bottom face of the sheet ejected from the paper discharge roller, and an upper end portion of the paper discharge guide is placed higher than contact surfaces of the paper discharge roller and the sheet.

3. The paper discharge unit as claimed in claim 2, wherein a paper discharge opening is formed on one side of the printer main body, and the paper discharge guide is between the paper discharge roller and the paper discharge opening.

4. The paper discharge unit as claimed in claim 2, wherein a paper discharge opening is formed on one side of the printer main body, and the paper discharge guide is adjacent to the paper discharge opening and protrudes from an outer wall of the printer main body.

5. A paper discharge unit used with an inkjet printer which ejects a sheet on which image printing is completed by a nozzle part out of a printer main body, comprising:

a paper discharge roller mounted in a printer main body to feed the sheet out of the printer main body;

a paper discharge guide elevatably mounted downstream of the paper discharge roller in a direction the sheet is fed, to guide the bottom face of the sheet ejected from the paper discharge roller; and

a driving unit to elevate the paper discharge guide in order for an upper end portion of the paper discharge guide to be disposed higher than a contact surface between the paper discharge roller and the sheet as the sheet is discharged from the paper discharge roller.

6. The paper discharge unit as claimed in claim 5, wherein the driving unit includes:
a support member supporting the paper discharge guide;
rotating members rotatably mounted on the printer main body, and supporting the support member; and
a rotating unit rotating the rotating members so the paper discharge guide ascends and descends in association with sheet feeding.

7. The paper discharge unit as claimed in claim 6, wherein the rotating unit includes:
a first gear rotatably supported by a first rotation shaft on one interior side of the printer main body, and receiving a driving force to rotate; and
second gears mounted on a second rotation shaft to rotatably support the rotating members on one interior side of the printer main body, and to rotate the rotating members in association with rotations of the first gear.

8. The paper discharge unit as claimed in claim 7, wherein the second gears directly mesh with the first gear.

9. The paper discharge unit as claimed in claim 8, wherein the first gear alternately rotates forward and reverse corresponding to positions of the sheet as the sheet is fed.

10. The paper discharge unit as claimed in claim 9, wherein the second gears are sector gears rotating by a certain rotation angle in association with the rotations of the first gear.

11. The paper discharge unit as claimed in claim 10, wherein the second gears are formed in one body with the rotating members.

12. The paper discharge unit as claimed in claim 11, wherein the paper discharge roller is mounted on the first rotation shaft to rotate in association with the rotations of the first gear.

13. The paper discharge unit as claimed in claim 7, further comprising a power transmission unit to transmit a driving force from the first gear to the second gears.

14. The paper discharge unit as claimed in claim 13, wherein the first gear alternately rotates forward and reverse corresponding to positions of the sheet as the sheet is fed.

15. The paper discharge unit as claimed in claim 14, wherein the power transmission unit is a swing gear assembly interactably connecting the first gear and the second gears.

16. The paper discharge unit as claimed in claim 15, wherein the swing gear assembly includes:

a pivot member rotatably mounted on the first rotation shaft of the first gear; and
third and fourth gears spaced from each other and rotatably mounted on the pivot member, and meshed with the first gear respectively, the pivot member rotating by the third and fourth gears meshed with the first gear as the first gear rotates, and the second gears selectively meshed with one of the third and fourth gears corresponding to rotations of the pivot member.

17. The paper discharge unit as claimed in claim 16, wherein the second gears are sector gears rotating by a certain rotation angle in association with rotations of the first gear.

18. The paper discharge unit as claimed in claim 17, wherein the third and fourth gears are multi-stepped gears each having a first gear part meshed with the first gear and a second gear part selectively meshed with the second gear upon the rotations of the pivot member.

19. The paper discharge unit as claimed in claim 18, wherein the second gears are mounted side by side in plural on a second rotation shaft member, and each of the second gears is selectively meshed with the third and fourth gears respectively as the pivot member rotates.

20. The paper discharge unit as claimed in claim 19, wherein the second gears are formed in one body with the rotating members.

21. The paper discharge unit as claimed in claim 19, wherein the second gears, support member, rotating members, and paper discharge guides are formed in one body.

22. The paper discharge unit as claimed in claim 7, wherein the first gear is connected through sheet feeding rollers rotatably mounted upstream of the nozzle part in the direction the sheet is fed, supplying the sheet to the sheet discharge rollers and a certain gear train.

23. The paper discharge unit as claimed in claim 6, wherein the driving unit further includes a guide protrusion which protrudes on one side of the support member opposite to an internal wall of the printer main body, and a guide slit formed in the internal wall of the printer main body to guide rotations of the guide protrusion, a rotation range of the support member being limited by the guide protrusion and the guide slit.

24. The paper discharge unit as claimed in claim 23, wherein the driving unit further includes an elastic member that elastically presses the guide protrusion moved to either of both ends of the guide slit, to thereby restrain the guide protrusion from moving to the other end of the guide slit.

25. The paper discharge unit as claimed in claim 24, wherein the elastic member is a toggle spring both ends of which are connected to the guide protrusion of the rotating member and the printer main body, respectively.

26. The paper discharge unit as claimed in claim 25, wherein the toggle spring is formed in a one end-opened annular shape, and both ends of which are rotatably connected to the guide protrusion and the printer main body, respectively.